SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for the

RIO GRANDE DRAINAGE BASIN

May 1, 1941

* * * * *
* * * *
* * *
* *
*

Issued by the
United States Department of Agriculture
Soil Conservation Service
Division of Irrigation
In Cooperation with
The Colorado Agricultural Experiment Station
Colorado State College
Fort Collins, Colorado

May 1, 1941

SNOW SURVEYS AND IRRIGATION WATER FORECASTS

for

RIO GRANDE BASIN

May 1, 1941

The following data pertaining to snow surveys and irrigation water-supply forecasts are provided by the Division of Irrigation, Soil Conservation Service of the U.S. Department of Agriculture, in cooperation with other Federal Bureaus, State Departments, and local organizations. The snow measurements are made principally by field personnel of the U. S. Forest Service and Colorado State Engineer. This work is otherwise conducted cooperatively with the State Engineers of Colorado and New Mexico, Colorado Agricultural Experiment Station, and various municipalities, irrigation associations and others. Precipitation records are supplied by the U. S. Weather Bureau.

PRECIPITATION DATA

WATERSHED	STATE	Precipitation October 1 to April 30	Departure from Normal	Precipitation April	Departure from Normal
		Inches	Inches	Inches	Inches
Canadian	New Mexico	9.71	+4.47	2.73	+1.50
Rio Grande	Colorado	11.81	+3.44	2.39	+0.83
Rio Grande	New Mexico	13.17	+5.48	2.00	+0.83
Pecos	New Mexico	8.97	+3.70	1.87	+0.96

Precipitation was considerably in excess of the normal during April over the watershed of the Pecos and the Canadian Rivers in New Mexico and the Rio Grande in Colorado and New Mexico. Heavy rains continued the first week in May. The accumulated precipitation from October 1 to April 30 is from 3 to 5 inches in excess of the normal over the watersheds.

SUMMARY OF MAY 1 SNOW SURVEYS AND COMPARISON OF DATA WITH THAT OF PREVIOUS YEARS BY WATERSHEDS

WATERSHEDS	Snow Depth			Water Content			Number Courses in Average	Snow Density			1941 Water Content in percent of	
	Five year Avg.*	1940	1941	Five year Avg.*	1940	1941		Five year Avg.*	1940	1941	Five year Avg.*	1940
	In.	In.	In.	In.	In.	In.		Percent	Percent	Percent		
Rio Grande	23.2	8.7	49.9	9.6	3.7	19.1	10	41	42	38	199	516
Canadian River	--	--	18.6	--	--	7.1	2	--	--	38	--	--

*Some for shorter periods

WATER SUPPLY OUTLOOK

RIO GRANDE. The average water content of the snow on the watershed of the Rio Grande on May 1 was over 5 times what it was last year at this time and nearly twice the 5-year average. Three courses on the Rio Grande had more than 100 inches of snow on May 1 and the average water content on all the courses is more than twice the actual snow depth a year ago. The run-off will probably be considerably in excess of that of 1937, in fact near flood stages have already been reached on the streams in some areas. Although comparative data are not available for the courses on the Pecos and Canadian Rivers, the highest run-off in recent years is expected from these watersheds.

Storage in reservoirs on the Rio Grande in Colorado and New Mexico on May 1 was below normal, but there is every indication that the reservoirs will be filled from flood waters this season. On May 1, Conchas Reservoir on the Canadian had 155,500 acre-feet in storage; on May 2 the storage had increased to 204,000 acre-feet as the result of heavy rains.

Soil moisture condition is excellent in all parts of New Mexico. Penetration of moisture in the northern part of the state is expected to reach unusual depths.

The water supply outlook for New Mexico is better than it has been at any time in recent years.

RIO GRANDE WATERSHED

Summary of Federal and State Cooperative Snow Surveys

Issued May 10, 1941, at Fort Collins, Colorado

No.	Main Drainage and Snow Course	Local Drainage	Location			Elev.	National Forest	May 1 Snow Course Measurements					
								Av. Snow Depth			Av. Water Content		
			State	Locality	Description			Avg.	1940	1941	Avg.	1940	1941
								In.	In.	In.	In.	In.	In.
	RIO GRANDE												
26	Wolf Creek Pass	South Fork	Colo.	Wolf Cr.Pass	4-37N-2E	10000	Rio Grande	58.4	23.2	108.2	26.5	9.8	45.2
27	Upper Rio Grande	Rio Grande	"	RioGrande Res.	13-40N-4W	9350	" "	5.8	0.0	34.5	1.7	0.0	10.4
47	Silver Lakes	Alamosa R.	"	1mi.S.Silver L.	15-36N-5E	9600	" "	4.0	0.0	20.1	1.7	0.0	8.3
49	River Springs	Conejos R.	"	10mi.W.Mogote	25-33N-6E	9300	" "	4.0	0.0	14.1	1.3	0.0	4.3
74	LaVeta Pass#2	SanCristo Cr.	"	LaVeta Pass	22-28S-70W	9300	SanCristoGr	8.0	0.0	36.3	3.1	0.0	13.8
75	Ute Ridge	Rio Grande	"	Rio Grande Res.	31-41N-4W	9700	Rio Grande	--	0.0	--	--	0.0	--
76	Summitville	Wightman Cr.	"	Summitville	30-37N-4E	11500	" "	62.1	38.1	100.3	23.2	15.4	37.5
77	Cumbres Pass #2	Los Pinos R.	"	Cumbres Pass	17-32N-5E	10000	" "	39.7	14.9	91.8	20.5	7.6	37.6
80	Santa Maria	N.Clear Cr.	"	Santa Maria Res.	8-41N-2W	9700	" "	5.4	0.0	16.1	2.5	0.0	7.4
82	Culebra	Culebra R.	"	12mi.E.SanLuis	37.2N105.2W	10000	SanCristoGr	34.7	10.4	59.0	12.8	4.2	21.5
84	Fort Garland	Big Ute Cr.	"	6mi.N.Ft.Garland	13-29N-72W	8200	" " "	9.4	0.0	18.8	2.7	0.0	5.4
1	Red River	Red River	N.Mex.	6mi.SE.RedRiver	29-28N-15E	9500	Carson	--	--	32.9	--	--	15.4
2	Taos Canyon	Rio de Taos	"	14mi.E.Taos	10-25N-15E	9000	"	--	--	20.7	--	--	8.2
4	Aspen Grove	Rio En Medio	"	10mi.NE.SantaFe	12-18N-10E	9100	Santa Fe	--	--	8.9	--	--	3.7
5	Lee Ranch	Jemez Cr.	"	5mi.NW.Bland	3-18N-4E	9050	" "	--	--	48.9	--	--	22.5
6	Canjilon	Canjilon Cr.	"	8mi.NE.Canjilon	4-26N-6E	9500	Carson	--	--	103.5	--	--	41.4
7	Rio Nutrias	Rio Nutrias	"	10mi.SE.ParkView	6-27N-5E	7900	"	--	--	0.0	--	--	0.0
8	Panchuela	Panchuela Cr.	"	1mi.N.Cowles	34-19N-12E	8500	Santa Fe	--	--		--	--	
9	Hematite Park*	Red River	"	3mi.SE.Red R.	8-28N-15E	9500	Carson	--	--	19.8	--	--	8.2
12	Tres Ritos	Agua Piedra	"	7mi.W.Holman	23-22N-13E	9000	"	--	--	9.6	--	--	3.9
15	Pay Role	Rock Creek	"	4mi.SE.Hopewell	16-28N-7E	10000	"	--	--	38.4	--	--	16.6
16	Jicarilla	Rock Lake Cr.	"	15mi.S.Dulce	9-29N-1W	8500	Jicarilla R.	--	--			--	
17	Chama Divide	Willow Creek	"	6mi.W.Chama	36.9N 106.7W	7750	Off Forest	--	--			--	
18	Chamita	Chamita Cr.	"	6mi.NW.Chama	36.9N-106.7W	8500	" "	--	--			--	
					Average for Drainage			23.2	8.7	49.9	9.6	3.7	19.1
	CANADIAN												
9	Hematite Park	Moreno Creek	N.Mex.	3mi.SE.Red R.	8-28N-15E	9500	Carson	--	--	19.8	--	--	8.2
10	Ocate Mesa	Ocate Creek	"	3mi.E.Black L.	25-24N-16E	9200	Off Forest	--	--	17.5	--	--	6.0
					Average for Drainage					18.6			7.1

*On adjacent Drainage

RESERVOIR STORAGE

Reservoir Storage in Thousands of Acre-Feet, Rio Grande Drainage, as of May 1, for the Years 1932-1941, inclusive. (Based on data gathered by State Engineer of Colorado, U. S. Bureau of Reclamation and other agencies).
A = Percentage of capacity. B = Percentage of 10-year average.

Reservoir	Capacity	1932	1933	1934	1935	1936	1937	1938	1939	1940	1941	10-yr. Avg.ϕ	A	B
	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	Ac-ft	%	%
Rio Grande	45.8	2.7	15.3	4.9	0.3	23.6	16.2	17.5	36.7	4.7	8.4	13.0	18	65
Santa Maria	45.0	4.8	7.0	6.8	4.6	6.9	9.5	10.8	15.1	3.8	4.6	7.4	10	62
Sanchez	25.9	10.2	10.2	12.0	7.4	13.8	17.6	19.2	22.9	10.9	8.6	13.3	33	65
Terrace	17.7	1.9	0.6	1.4	1.3	6.4	4.5	9.6	7.5	1.7	3.8	3.9	21	98
Continental	26.7	0.0	6.5	2.6	0.8	3.3	0.5	4.0	4.3	1.0	0	2.3	---	---
Elephant Butte	2273.7	1168.0*	1275.3*	1001.6*	488.0*	782.5	917.1	1099.0	1324.0	803.2	597.8	945.6	26	63
El Vado	226.0	---	---	---	---	---	---	148.6	87.4	113.7	129.8	119.9	57	108
Caballo	365.0	---	---	---	---	---	0	14.5	44.5	17.3	67.9	36.0	19	188
Conchas	600.0	---	---	---	---	---	---	---	---	80.6	155.5	---	26	--

ϕSome averages for shorter periods.
*Based on capacity of 2,407,100 acre-feet.